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Hamilton Perimeter Road

Phase I – Transportation Planning
Investigations

DILLON



**Hamilton Perimeter Road
Phase I – Transportation Planning
Investigations**

28 Sept. 1987
1258-01/18



Consulting Engineers • Planners
Environmental Scientists

OUR FILE: 1258-10/18
YOUR FILE:

23 September 1987

The Regional Municipality of
Hamilton-Wentworth
Department of Transportation
71 Main Street West
Hamilton, Ontario
L8N 3T4

Att: Mr. E. M. Gill, P. Eng.
Manager - Project Planning

Hamilton Perimeter Road

Dear Sirs:

Please find enclosed our report documenting the analysis undertaken for Phase I of the project "Transportation Planning Investigations".

Yours truly,

A handwritten signature in black ink, appearing to read "I. Williams", written over a horizontal line.

I. Williams, P. Eng.
Project Manager

IW:gjo



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1.0 INTRODUCTION

1.1 Study Approval

In September 1986 Regional Council approved the "Hamilton Perimeter Road Transportation Planning and Functional Design Study" to:

1. address existing problems of:
 - truck traffic on downtown streets
 - through traffic on downtown streets
 - through traffic on residential streets
2. alleviate future problems of congestion
3. support policies of:
 - encouraging economic development
 - enhancing the urban environment

1.2 Objectives of the Investigation

This report documents the findings and conclusions of a comprehensive investigation undertaken to:

- ° establish the need, scope and timing for the expansion of the arterial roadway network in the west lower City of Hamilton
- ° assess alternatives in association with affected agencies and the general public
- ° develop a recommended concept
- ° refine the recommended concept to determine appropriate budgeting, staging and property requirements

1.3 Project History

The Perimeter Road has been discussed in various Planning and Transportation Documents since the early 1960's, including but not limited to:

1. 1963 Redevelopment Plan for the North End
2. The Hamilton Area Transportation Study (1963)
3. The Hamilton Transportation Strategy Study (1973)
4. The Regional Official Plan (1982)
5. The City of Hamilton Official Plan (1982)

In 1978 the Perimeter Industrial Road Feasibility Study recommended a basic route for the Perimeter Road from Burlington Street to Highway 403. In 1978 Regional Council endorsed this recommendation and property acquisition has been undertaken at various locations along the route.

1.4 Study Approach

These investigations are a continuation of the study completed in 1978, and reflect changes since then in:

- ° population levels (actual and forecasted)
- ° the Regional Road Network including such links as:
 - the completion of Burlington Street East
 - major improvements to the Skyway corridor
 - approval of the N-S/E-W transportation corridor
- ° travel patterns
- ° truck volumes and routes
- ° Municipal policies concerning:
 - the enhancement of the urban environment, and
 - the encouragement of economic development

To respond to these changes the study is being conducted in two phases:

1. Phase I - Transportation Planning Investigation
2. Phase II - Preliminary Design Investigations

Phase I activities are:

- ° forecast transportation demand
- ° identify problems and opportunities
- ° assess alternatives
- ° develop a recommended concept

This report documents the results of Phase I.

Phase II will develop the recommended concept at a preliminary design level of detail to determine:

- ° accurate construction cost estimates
- ° exact property requirements
- ° identification of environmental impacts and methods of mitigation

The results of Phase II will be documented in a separate report.

1.5 The Study Area

The study area was selected to allow for:

- ° the development of a full range of alternatives
- ° the identification and assessment of impacts to the economic, social and natural environment.

The study area is shown on Figure 1.1 and encompasses the western lower city bounded by the Harbour, Sherman Avenue, the Escarpment and Highway 403.

1.6 Study Organization

This study is being undertaken by M.M. Dillon Ltd. and is directed by the Regional Municipality of Hamilton-Wentworth through the Engineering Services Committee. Day to day management is provided by a working committee chaired by the Manager of Project Planning of the Transportation Department and includes representatives from:

- ° Regional Planning Branch
- ° Local Planning Branch
- ° City Traffic Department
- ° Ministry of Transportation and Communications

The study has included a public involvement program with:

- ° two workshop sessions with representatives from Government agencies, local interest groups, rate-payers associations and other interested parties.
- ° a public information centre for members of the general public.

Information on the public involvement program is presented in Chapter 6 and the appendix. A "Study Design" and "Scope-of-Work" documents have been produced and received by Council. These reports detail the study's tasks, timing and level of effort.

1.7 General Description of the Project

The proposed Perimeter Road project would include:

1. a four-lane, divided, limited access, urban roadway from Victoria Avenue to Highway 403

2. a widening of existing Burlington Street between Sherman and Victoria Avenue to provide six lanes plus turning lanes where required
3. reconstruction of portions of Bay Street from the Perimeter Road southerly

The basic route is shown on Figure 1.1.

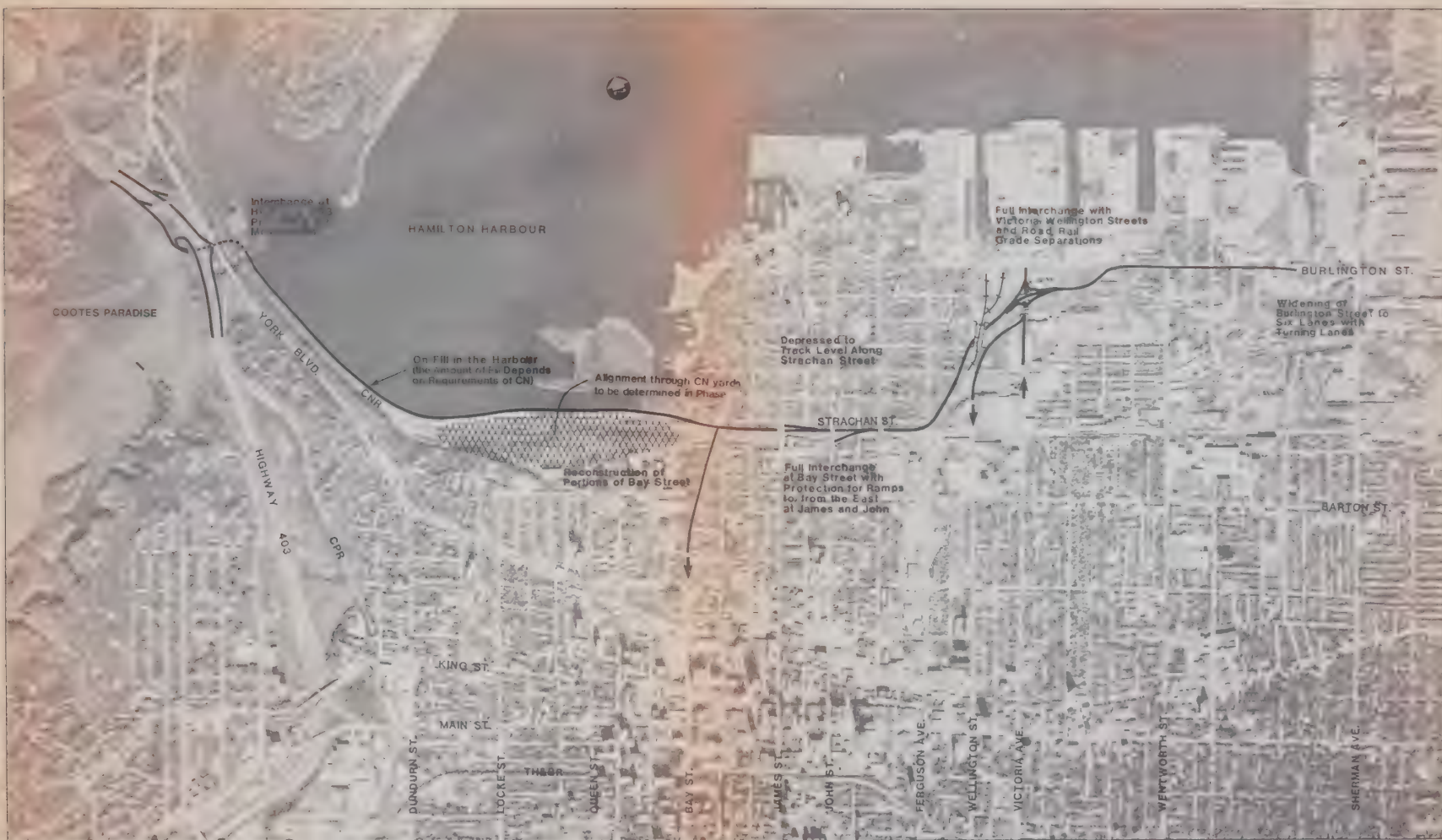


FIGURE 1-1 Scale 1:15 000 (approx.)

2.0 STATEMENT OF RATIONALE

This section documents the development of the rationale for the Perimeter Road, summarizes the evaluation of alternatives and presents the recommended concept.

Based on investigations documented in this section, staff of the Regional Municipality of Hamilton-Wentworth are of the opinion that the proposed project represents the most desirable course of action. The potential benefits and effects of the proposal have been carefully weighed in reaching this conclusion.

2.1 Purpose of the Project

The purpose of the project is to:

1. address existing problems of:
 - ° truck traffic on downtown streets
 - ° through traffic on downtown streets
 - ° through traffic on residential streets
2. alleviate future problems of congestion
3. support policies of:
 - ° encouraging economic development
 - ° enhancing the urban environment

The purpose does not relate only to the traditional rationale of alleviating forecasted congestion. The purpose is to solve a combination of existing and future problems in a manner consistent with, and in support of, Regional Policy. These problems and issues are expanded upon below.

2.1.1 The Existing Situation

The arterial network in the west lower City of Hamilton is discontinuous. This situation is the cause of transportation problems and makes it difficult to implement Regional Policies of encouraging economic growth and enhancing the urban environment.

Burlington Street now ends at Bay Street and Barton Street ends at Queen Street. There is no direct connection between the Bay Front Industrial Area and Highway 403. This results in large volumes of car and truck traffic travelling through the downtown.

These downtown streets were not originally intended for large volumes of traffic. They have:

- ° narrow rights-of-way
- ° limited turning radii
- ° substantial residential frontage
- ° narrow sidewalks
- ° buildings abutting the property line

These characteristics make the downtown streets less suitable for high volumes of traffic than arterial roadways built to present standards.

2.1.2 Truck Traffic on Downtown Streets

Interviews held with Bay Front industries as part of this study indicate that they are major suppliers to the traditional auto markets in Detroit and Windsor. They are now also supplying the growing auto industry in Cambridge, London, and St. Thomas. The "just-in-time" inventory procedures employed by most manufacturers place almost complete reliance on trucks. Shipping to these and other markets is therefore now almost entirely by truck.

The Bay Front industries are the economic core of the Region. They rely heavily on trucks and will continue to do so. They need efficient direct access to their markets to maintain a competitive position.

Bay Front truck traffic must travel on downtown streets, past residences, through numerous traffic signals and around tight corners to access Highway 403. Under these conditions, trucks are a nuisance in residential areas, incompatible with an urban environment, more expensive to run and maintain, and less efficient in servicing markets.

Every Bay Front Industry interviewed identified poor access to Highway 403 to serve markets to the south and west as a problem today and expect this to worsen with increased economic activity and increased reliance on trucking. Therefore improved access for Bay Front truck traffic is required to complement the Region's policies of supporting this major economic sector.

2.1.3 Through Traffic on Downtown Streets

Today, the east-west major arterial streets of King, Main, York and Aberdeen carry approximately 120,000 vehicles per day. This is more than twice the volume now carried on Highway 403 through Hamilton.

This high volume on narrow streets creates greater than desirable:

- ° noise impacts
- ° dust
- ° vibration
- ° air pollution
- ° safety hazards

These conditions are inconsistent with an urban environment that encourages:

- ° pedestrian movement
- ° sidewalk activities
- ° street landscaping
- ° wider sidewalks
- ° on-street parking

In order to further implement approved municipal policies aimed at improving the urban environment, through traffic should be removed from downtown streets.

2.1.4 Through Traffic on Residential Streets

The discontinuous arterial network makes streets in the North End Neighbourhood an attractive route for through traffic. Traffic studies (see Section 3.3) undertaken for this project revealed that one-third of the traffic, 1200 vehicles per hour, in the North End Neighbourhood is infiltrating. This is traffic without an origin or destination within the North End Neighbourhood. It is carried entirely on residential streets.

Many new communities are planned to entirely remove through traffic from residential streets. In older residential areas there is some traffic infiltration. However, for residential streets to carry such large volumes of through traffic is unusual and is considered to be unacceptable by area residents. These volumes detract from the residential environment and cause significant noise and safety problems. Through traffic should eventually be removed from the North End Neighbourhood.

2.1.5 Future Congestion

The east-west arterial streets of King, Main, York and Aberdeen, in the west lower city now carry 120,000 vehicles per day. They have a practical capacity of some 150,000 vehicles per day. Based on historical growth this capacity will be reached in less than ten years.

However, the upswing in the economy is generating growth well above the historical norm. Employment in the downtown has remained almost constant over the past 15 years but is expected to increase by 60% over the next 15 years. There is considerable unrealized growth potential as only 7% of the downtown floor space has been constructed to date. Major recent committed projects include the Eaton Centre, Bank of Commerce and numerous condominium projects in the downtown and the proposed Waterfront Park on the Bay Front.

Analysis undertaken in Phase I (See Section 3.4) shows the existing road network cannot accommodate the additional traffic generated by this increased development activity.

Added to this, are plans to reduce the capacity of the present road system to provide an enhanced urban environment, on James Street North and King Street East. Therefore additional east-west arterial roadway capacity will soon be required in the west lower city.

2.1.6 Regional and City Policies (Economic and Urban Environment)

The Official Plan of the Regional Municipality of Hamilton-Wentworth designates a corridor for the Perimeter Road and the City's official plan conforms to this.

The Region's adopted Economic Strategy is to attract population, attract new jobs, keep existing jobs, encourage small business and to develop a Regional Centre in downtown Hamilton to its fullest potential. The strategy recognizes the importance of transportation improvements in achieving these goals. Specifically the strategy identifies the Perimeter Road as:

- ° improving access to the Bay Front Industrial Area
- ° facilitating access to the downtown
- ° diverting traffic from the downtown
- ° improving access to the Waterfront Park

The City's Central Area Plan is aimed at creating an environment conducive to investment, regeneration and growth. To implement these policies specific objectives are to:

- ° provide access to the downtown
- ° divert through traffic from the downtown
- ° divert traffic from residential areas
- ° improve the pedestrian environment

The Central Area Plan recognizes the importance of the Perimeter Road to the Central Area in providing a high level of service to the Region.

Improved access is also required to support the City's on-going Residential Enclaves Program. The enclaves are nine small areas of older housing located within the heavy industrial area north of the CN tracks in Hamilton. Some of these areas have been proposed for industrial uses in the City's Official Plan. The City's general intent of the program is to save the best enclaves for continued residential use and to develop the others for industrial purposes. The Perimeter Road would increase industrial redevelopment potential for the Land and Alpha enclaves and improve the residential development potential for the Keith enclave.

The importance of enhancing the urban environment through such measures as removal of traffic from the downtown and widening sidewalks is identified in the Region's Economic Strategy and the City's Downtown Action Plan has resulted in an extensive ongoing program aimed at making the downtown more attractive to pedestrians and shoppers. The Downtown Action Plan calls for wider sidewalks that result in less roadway capacity. The plan identifies the need for major roadway alternatives in order to implement many of its recommendations.

To date \$6.5M has been invested in upgrading the downtown, a further \$3.2M over the next 2 years has also been allocated. This significant sum of money indicates the commitment by the City to improving the downtown urban environment.

The Perimeter Road would provide improved local and regional access to the Waterfront Park. The Waterfront Park Master Plan was adopted by Council in September 1985. It is a major tourist and recreational facility intended to increase accessibility and use of the waterfront.

Proposed uses are:

- ° Crystal Palace for botanical/horticultural displays and programmed activities
- ° IMAX theatre
- ° small outdoor amphitheatre
- ° swimming/skating lagoon
- ° upgraded marine facilities
- ° landscaped open areas
- ° childrens play areas

In summary, key factors in support of the Region's and City's Policies of promoting economic development and enhancing the urban environment are:

- ° improved access to the downtown
- ° reduced through traffic in the downtown
- ° increased east-west capacity
- ° improved access to the Waterfront Park

2.2 Objectives of the Project

Based on the problems, issues and policies identified above, the specific objectives of the project can be summarized as follows:

- 1. Reduce traffic volumes (heavy trucks and automobiles);**
 - on the parallel street system, and
 - in the North End residential neighbourhood.
- 2. Increase east-west arterial roadway capacity in the west lower City.**
- 3. Improve access to the downtown.**
- 4. Support City and Regional policies to enhance the urban environment.**
- 5. Improve access to the proposed Waterfront Park.**
- 6. Support Regional policy for increasing economic development.**
- 7. Minimize impacts to the social/economic/natural environment.**

To address these objectives, the following sections discuss:

- ° strategic planning alternatives
- ° roadway corridor alternatives
- ° alignment alternatives

2.3 Appropriate Planning Alternatives

2.3.1 Definition of Planning Alternatives

To address the problems, issues and policies outlined in 2.1, and to meet the objectives outlined in 2.2, the following planning strategies were formulated:

(i) No-Action Alternative

The No-Action Alternative is defined as:

1. the continued maintenance of present road facilities
2. completion of committed roadway projects
3. non-structural methods of reducing peak hour traffic such as:
 - ° increased public transit usage
 - ° increased use of shift work

(ii) Improvements to the Existing Network

Improvements to the existing network include:

1. operational modifications to the road system, of preferential lanes, one-way streets, selective lane additions and intersection improvements
2. the planned expansion of the road system within available rights-of-way

(iii) Major New Roadway Alternatives

These alternatives are new roadways outside of existing or designated rights-of-way.

2.3.2 Assessment of Planning Alternatives

The assessment of the three strategies is discussed briefly in the following sections:

(i) No-Action

The no action alternative does not provide a realistic or acceptable solution because:

- the existing roadways will not accommodate the forecasted volumes (See Section 3)
- there would be no reduction in infiltrating traffic through the North End Neighbourhood
- other planned roadway projects would not solve the problems and support Regional and City Policies.
- extensive modification to peak hour travel is not possible due to extensive use of shift work in the Bay Front Industrial Area.
- transit improvement potential is limited (See Section 3)

(ii) Improvements to Existing Network

Existing routes in the downtown such as York, Bay, King, Main, Aberdeen, Cannon/Wilson cannot be widened without extensive and unacceptable property impacts. The Right-of-Way Width Study concluded that there is no realistic potential to widen arterial roads within the west lower city. Furthermore, the widening of existing arterial roadways in this area is contrary to established Regional and City Policies and plans.

Operational modifications have been extensively employed in Hamilton. Traditional methods of improving capacity such as one-way streets, parking removal and intersection widenings have already been implemented. There is little potential to increase capacity on the existing streets through operational modifications.

Therefore the strategy of improving the existing network is considered to be unacceptable and is not considered further.

(iii) Major New Roadway Alternatives

The "No-Action" alternative and the "Improvements to the Existing Network" alternative will not solve the problems of reducing traffic in the downtown and reducing through traffic on residential streets and will not support Regional Policies of encouraging economic growth and enhancing the urban environment.

Consequently the study has concluded that the only feasible method of solving these problems and supporting the Policies is to provide a new roadway. It should be noted that a new roadway link is included in: The City and Regional Official Plans, The Economic Strategy Study, and Central Area Plan.

Alternative locations for a new facility were addressed in the 1978 Perimeter Road Feasibility Study, the results of which are summarized in Section 2.4 below.

2.4 The 1978 Perimeter Road Study

Major road expansion alternatives examined as part of the 1978 study were:

- a) Construction on causeway across the Bay.
- b) Widen existing Barton Street with a tunnel under the Hamilton Cemetery to Highway 403.
- c) Widen both existing Barton and Cannon Streets to form a one-way pair with a tunnel under the Hamilton Cemetery to Highway 403.
- d) A new roadway along the Bayshore to the Highway 403/ Highway 6 interchange.
- e) A new roadway along the Bayshore to connect to Highway 403 with an interchange in the vicinity of the York Boulevard High Level Bridge.

The major roadway expansion alternatives (a), (b), (c) and (d) were considered to be unacceptable due to:

- the extensive property damage required for widening existing streets such as Barton and Wilson.
- unacceptably high costs and environmental impacts for constructing on causeway across the Bay.
- unacceptable impacts to the Royal Botanical Gardens for a connection to the Highway 403/Highway 6 interchange.

The investigations undertaken as part of Phase I of this study have reconfirmed the findings of the 1978 study and have concluded that the corridor identified from the 1978 study is the only viable means of providing for a connection between Burlington Street and Highway 403.

The plan recommended by the 1978 study was as follows:

- ° Connection to Highway 403 in the general vicinity of the existing York Boulevard ramps with a comparatively high-standard interchange providing for all movements.
- ° New alignment adjacent to Hamilton Harbour (either on the north side of the railway yards with some fill in the bay, or on the south side on the railway lands).
- ° New alignment at track level from Victoria Avenue to Bay Street between Strachan Street and the CNR tracks.
- ° Widening of existing Burlington Street from Sherman Avenue to Victoria Avenue.

In 1978 Regional Council endorsed this route.

2.5 Alignment Alternatives

Phase I of this study focussed on the evaluation of alternatives within the corridor identified in the 1978 study at Highway 403 and from Bay Street to Highway 403. From Bay Street easterly alternative access configurations were evaluated.

2.6 The Recommended Concept

2.6.1 Description of the Recommended Concept

The recommended concept is shown on Figure 1.1 and is as follows:

1. Connection to Highway 403 with a trumpet interchange in the vicinity of the Desjardins Canal.
2. Construction on the north side of the CN tracks west of the CN yards. The location through the CN yards will be determined during Phase II.
3. A full interchange at Bay Street with protection for ramps to and from the east at James and John Streets.
4. Construction at track level through the Strachan Street Corridor.
5. Reconstruction of portions of Bay Street from the Perimeter Road southerly.
6. An interchange at Victoria/Wellington with road and rail grade separation.
7. The widening of Burlington Street from Sherman to Victoria from four to six lanes with provision for turning lanes.

The construction cost of the recommended concept will be between \$55M and \$70M.

2.6.2 Overview of Impacts of the Recommended Concept

Socio-Economic Environment

The Perimeter Road will be a major roadway link in close proximity to the North End Neighbourhood. By depressing the Perimeter Road in the Strachan Street Corridor, many impacts associated with the roadway will be mitigated. However, some noise and visual impacts to the North End Neighbourhood and the Waterfront Park are still expected.

Phase II investigations will examine means of mitigating the potential noise and visual impacts on the North End Neighbourhood and the proposed Waterfront Park.

In addition to property already purchased by the Municipality (See Section 4) an additional 14 homes will be required in the North End and up to 30 buildings on Bay Street. The exact property requirements will be determined during Phase II.

The Perimeter Road will:

- ° remove up to 25,000 cars and 3,500 trucks per day from downtown streets.
- ° remove one-third of the traffic in the North End Neighbourhood.
- ° alleviate congestion associated with planned developments in the downtown.

- support the Region's Economic Strategy and the City's Central Area Plan and Residential Enclaves Program through:
 - improved access to the downtown
 - reduced through traffic in the downtown
 - increased east-west capacity
- improve access to the proposed Waterfront Park
- support plans to enhance the urban environment on James Street North and King Street East.

Natural Environment

At Highway 403, 5000m³ of fill will be required in Cootes Paradise, a designated Environmentally Sensitive Area. Tree planting and landscaping of this fill will mitigate visual intrusion. The amount of fill and surface area reduction are considered to be relatively minor. Interchange ramps will require fill in a spit/marsh area within a designated ESA of Hamilton Harbour.

During Phase II investigations, means of mitigating concerns over placement of fill will be examined and reviewed with external agencies. In addition, alternative configurations of the interchange ramps will be explored to mitigate impacts to the spit/marsh area in the harbour.

To construct the Perimeter Road from Bay Street to Highway 403 north of the CN yards would require approximately 260,000m³ of fill in the harbour. This assumes that the Perimeter Road will avoid all of CN's operations and the construction would be almost entirely on fill. Impacts associated with this fill are the displacement of sediments containing mercury and cadmium and effects to the areas of fish habitat.

During Phase II investigations, means of mitigating these impacts will be developed and reviewed with external agencies. Also during Phase II alternatives through the CN yards will be developed and evaluated in more detail.

Where fill is required in the harbour, means of designing the fill slopes to enhance areas of fish habitat will be explored.

The potential also exists to improve the natural environment by landscaping portions of the right-of-way in areas where there is now little or no vegetation.

2.7 Staging and Timing

The Perimeter Road project could be built in three separate independent stages. The following sections describe the three stages and their merits. Further consideration to staging and a recommended construction program will be developed during Phase II.

2.7.1 Victoria to Bay

A stage of the Perimeter Road from Victoria to Bay Street, including reconstruction of portions of Bay Street southerly would:

- initially eliminate through traffic in the North End Neighbourhood,
- improve access from the east and south to the proposed Waterfront Park,

- ° offload the downtown streets of:
 - Wellington
 - Victoria
 - Cannon
 - Barton
 - James
 - John
- ° have a construction cost between \$15 to \$18 million.

2.7.2 Bay to Highway 403

Construction of the Perimeter Road from Bay Street to Highway 403, including reconstruction of Bay Street would:

- ° increase east-west capacity by 40% in the west lower City of Hamilton,
- ° offload King, Main and York Streets,
- ° improve access to the Waterfront Park from the west and south,
- ° require traffic operational measures in the North End Neighbourhood to control infiltrating traffic.
- ° have a construction cost between \$36M to \$53M.

2.7.3 Sherman to Victoria

This section of the project requires widening of Burlington Street from four to six lanes with the provision for turning lanes. Traffic forecasts indicate that there will be no need to widen Burlington Street until the Perimeter Road is constructed from Victoria Street to Highway 403.

Burlington Street should be maintained as a four lane roadway and property acquired or protected to accommodate the future widening.

3.0 TRAFFIC*

3.1 Forecasts

3.1.1 Volumes

The forecasted year 2001 traffic volume for the Perimeter Road, west of Bay Street, is 1500 - 1700 vehicles per hour, westbound in the p.m. peak hour. This volume of traffic, on a four-lane urban roadway with access by interchange only, represents a desirable design standard for a new roadway.

This volume is comprised of:

- ° 900 vph from the Bay Front Industrial Area
- ° 200 vph from the North End Neighbourhood
- ° 100 to 200 vph from the Downtown East
- ° 300 to 400 vph from an area north of Cannon

These volumes are shown on Figures 3-1 and 3-2.

Eighty percent of the traffic forecasted for the Perimeter Road is comprised of existing volumes diverted from other roadways.

The corresponding east-bound volume in the p.m. peak hour is forecasted to be 1000 to 1200 vehicles per hour. Thus the total, p.m. peak hour, two-way volume for the Perimeter Road is expected to be 2500 to 3000 vph. These volumes include approximately 5% heavy trucks and 10% light trucks for a total of 15% commercial vehicles. This high volume of commercial vehicles, 400 trucks per hour, indicates the importance of the Perimeter Road for serving industries and trucking firms in the Bayfront area.

* traffic data and analysis was published in a separate interim report.

On a daily basis the Perimeter Road can be expected to carry 25,000 to 30,000 vehicles per day in the year 2001. For comparison purposes York Boulevard west of Dundurn now carries 30,000 vehicles per day and the elevated section of Burlington Street near Parkdale carries 40,000 vehicles per day.

3.1.2 Sensitivity Analysis

The forecasted volumes were employed in the determination and evaluation of intersection and interchange configurations. The proposed access configurations (See Section 2.0) are capable of accommodating the forecasted demand. To ensure good traffic service beyond the forecasting period a sensitivity analysis was undertaken. This analysis indicated that the Perimeter Road and its access points will be able to accommodate a 50% surcharge in volumes. Therefore the Perimeter Road and its access points are capable of accommodating traffic growth well beyond the year 2001.

Transit is not considered to be a viable alternative for traffic forecasted to use the Perimeter Road. The Perimeter Road serves longer distance trips outside the urban area of Hamilton away from frequent transit service. Travel times by transit would be considerably greater due to the infrequent service and the number of transfers involved. Transit would also not serve rural areas or truck traffic.

3.1.3 Network Implications

Changes to volumes on the highway network in the vicinity of Hamilton due to the Perimeter Road were tested. Volume changes identified are as follows:

QEW/Skyway	5% reduction
Highway 403, York to Highway 6	3% increase
Highway 403, York to Main	16% increase
Highway 6, Highway 403 to Clappisons corners	9% increase



FIGURE 3-1

Scale 1:15 000 (approx.)

YEAR 2001 FORECASTED TRAFFIC ON THE
PERIMETER ROAD, P.M. PEAK HOUR, WESTBOUND

HAMILTON PERIMETER ROAD



FIGURE 3-2 Scale 1:15 000 (approx.)

YEAR 2001 FORECASTED TRAFFIC IN THE VICINITY
OF THE NORTH END NEIGHBOURHOOD, P.M. PEAK HOUR

HAMILTON PERIMETER ROAD

This analysis indicates that:

- ° traffic is not expected to reroute from the QEW and Skyway to the Perimeter Road and Highway 403,
- ° the Perimeter Road is not expected to increase traffic on the major roadways in the vicinity of Hamilton,
- ° the Perimeter Road will redistribute traffic within the west lower City of Hamilton.

3.2 Off-loading of Other Routes

Table 3-1 shows the extent of off-loading caused by the Perimeter Road on York, King and Aberdeen. York Boulevard will carry a significantly lower volume of traffic than it carries today, volumes on King Street will remain approximately the same and some growth is expected on Aberdeen. In general York, Main, King, and Aberdeen are expected to accommodate the growth forecasted in the CBD.

TABLE 3-1

**EXISTING AND FUTURE SCREENLINE VOLUMES
(P.M. PEAK HOUR WESTBOUND AT HIGHWAY 403)**

<u>Traffic On</u>	<u>Existing Without Perimeter Road</u>	<u>Existing With Perimeter Road</u>	<u>Year 2001 With Perimeter Road</u>
York	1800	1100	1400
King	3400	2850	3550
Aberdeen	700	700	850
Perimeter Road	-	1250	1600
Total	5900	5900	7400

The extent of car and truck traffic removed from the downtown streets is shown on Figure 3.3. These volumes include 10% light trucks and 5% heavy trucks.

3.3 The North End Neighbourhood

Through traffic represents approximately one-third of the total entering and exiting traffic in the North End Neighbourhood in the p.m. peak hour. This through component is commonly referred to as infiltrating traffic. It does not have an origin or destination within the North End Neighbourhood.

The predominant through movements are:

- ° Westbound traffic entering the North End at Burlington Street and exiting southbound on Bay and James Street.
- ° Northbound traffic entering the North End at Bay and John Streets and exiting eastbound at Burlington Street.

The volumes of inbound and outbound traffic to and from the North End Neighbourhood along with the through component are as follows:

Total Inbound 1850	Terminating 1245	Through 605	% Through 33%
Total Outbound 1750	Originating 1145	Through 605	% Through 35%

The Perimeter Road will be a far more attractive route to through traffic than existing routes in the North End Neighbourhood. Through trips should be eliminated and traffic volumes can be expected to decrease by about one third in the North End Neighbourhood.



FIGURE 3-3 Scale 1:15 000 (approx.)

YEAR 2001 FORECASTED TRAFFIC OFFLOADED FROM DOWNTOWN
STREETS DUE TO THE PERIMETER ROADS P.M. PEAK HOUR

NOTE: VOLUMES CONTAIN 15% COMMERCIAL VEHICLES

HAMILTON PERIMETER ROAD

3.4 Capacity

The arterial roadways in the west lower City of Hamilton will be approaching capacity in the late 1990's. This is based on forecasted demand generated by growth and is confirmed by a review of historical trends during the a.m. and p.m. peak hour of traffic on King, Main, York and Aberdeen (see Section 2.1.5). Prior to reaching capacity these roadways will operate with high levels of congestion.

The Perimeter Road will provide additional capacity in the west lower City of Hamilton of approximately 3200 vph westbound. This represents an increase of 40% in roadway capacity and will meet forecasted demand well beyond the year 2001.

4.0 EXISTING AND FUTURE CONDITIONS

4.1 Socio-Economic Environment

4.1.1 Existing Land Use

The existing land use is illustrated on Figure 4.1 "Generalized Existing Land Use". It is based on a detailed review of the City of Hamilton zoning maps, assessment mapping, discussion with municipal staff, and field surveys (May 1987). The land use in the study area varies considerably and is described briefly below:

- ° Highway 403 Interchange Area's major land uses are open space and transportation facilities including The Royal Botanical Gardens, Cootes Paradise, Hamilton Cemetery, Hamilton Harbour, Kay Drage Park, Harvey Park, Highway 403, York Boulevard, CNR and CPR.
- ° Highway 403 to Bay Street is dominated by the CNR's Stuart Street Yard, Hamilton Harbour (Bay Front), Dundurn Castle and Park, former Lax landfill (now owned by the City of Hamilton), and industries including Stelco, Canron, Route Canada.
- ° Strachan Street Corridor is bounded by the North End residential neighbourhood and the CNR corridor.
- ° Wellington and Victoria Avenue Area is primarily industrial land use including tank farms, Otis Elevator, and vacant industrial land.
- ° Burlington Street Corridor is dominated by industrial land and residential enclaves.

4.1.2 Future Land Use

Future land use for the study area is based on a review of the Official Plan for the City of Hamilton, Local Area Plans and detailed discussion with Municipal Staff. Future land use is illustrated on Figure 4-2.

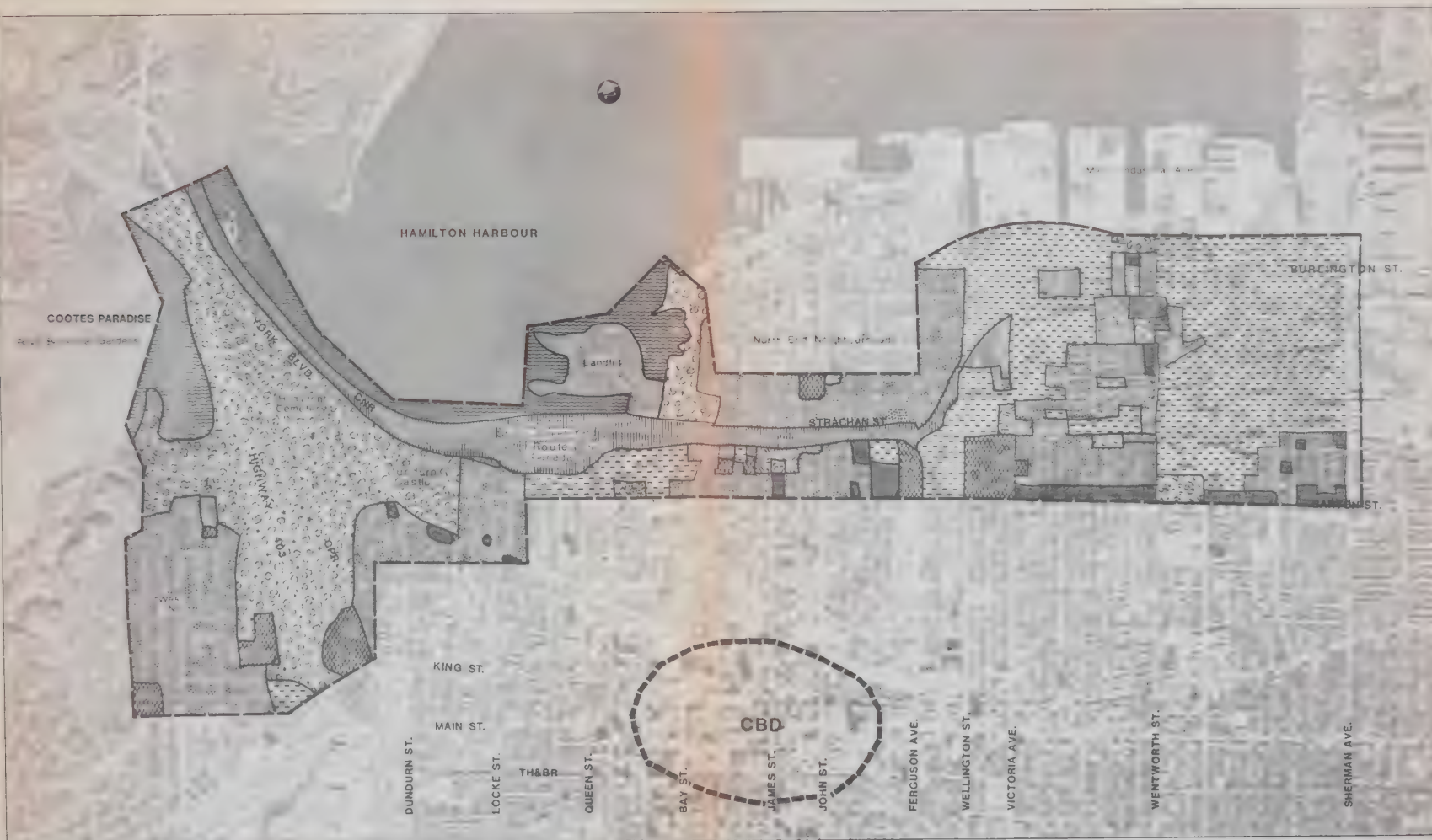
Significant reconfiguration of land use are not anticipated in the near future. However, the following changes are expected:

- A Waterfront Park and associated waterfront developments is proposed for the former Lax landfill.
- Increased redevelopment potential in the western portion of the Bay Front (due to improved access).
- Conversion of the Land and Alpha residential enclaves to industrial uses.

4.2 Natural Environment

The detailed assessment of the Natural Environment is based on:

- a review of GO-ALRT Natural Environment documentation
- Working Committee discussions
- input from the public and agencies through workshop discussions and the Public Information Centre
- meetings with the Royal Botanical Gardens staff
- meetings with Hamilton Region Conservation Authority



Legend

RESIDENTIAL
COMMERCIAL
INDUSTRIAL

UTILITIES
INSTITUTIONAL
OPEN SPACE

OPEN WATER
VACANT
PARKING AREAS AND
COMMUNICATION SERVICES

STUDY AREA
CENTRAL BUSINESS DISTRICT

Scale 1:15 000 (approx.)

GENERALIZED
EXISTING LAND USE

FIGURE 4-1 May 1987

HAMILTON PERIMETER ROAD



Legend

RESIDENTIAL
COMMERCIAL
INDUSTRIAL

UTILITIES
INSTITUTIONAL
OPEN SPACE

OPEN WATER
CENTRAL POLICY AREA
(primarily mixed use)

STUDY AREA
CENTRAL BUSINESS DISTRICT
PROPOSED ARTERIAL REGIONAL ROAD
(PERIMETER ROAD)

Scale 1:15 000 (approx.)

FUTURE LAND USE
FIGURE 4-2 May 1987
HAMILTON PERIMETER ROAD

- ° meetings with and review of documentation from the Hamilton Harbour Stakeholders
- ° field investigations

From this process two significant natural environmental features were identified in the study area. These are illustrated on Figure 4-3.

The most significant natural environmental feature in the study area is Cootes Paradise which is owned by the Royal Botanical Gardens and is located in the western part of the study area, mainly west of Highway 403. It is designated as an environmentally significant area and contains:

- ° significant fish habitat
- ° significant woodland vegetation
- ° areas of angling activity (Princess Point)
- ° sample specimen trees

The second significant natural environmental area is the western portion of Hamilton Harbour. This has been identified as one of the few remaining natural areas within the harbour and contains some significant fish and wildlife habitats. A significant portion of the harbour, north of the Desjardins Channel forms part of the Royal Botanical Gardens and is designated as an environmentally sensitive area.

4.3 Geotechnical

A geotechnical and chemical analysis of sediments along the bayshore was undertaken. This analysis indicated that:

North of CN Yards

- up to 12.2m of soft organic silt and discontinuous sand layers exist
- special construction techniques of sediment removal and compaction must be employed
- these sediments contain high levels of mercury and cadmium confirming results of previous studies in the area.

West of the CN Yards to the Desjardins Canal

- the area is underlain with major loose sand deposits
- no major construction problems are anticipated
- no hazardous chemicals were recorded.

There are significant environmental and engineering issues associated with constructing in the bay on fill north of the CN yards. Means of mitigating these effects through design and construction techniques will be examined in Phase II.




4.4 Property



A significant amount of property for the Perimeter Road has already been acquired or is designated for acquisition by the Region on a hardship basis. Municipally owned property is shown on Figure 4-4.



Approximately 65% of the area east of Bay Street to Wellington Street has been purchased. It currently exists as open space.





Legend

-  COOTES PARADISE HABITAT
-  AQUICULTURAL ACTIVITIES
-  SIGNIFICANT WILDLIFE AND VEGETATION

-  DESIGNATED HAMILTON WENTWORTH ENVIRONMENTALLY SENSITIVE AREA (D. 16)
-  SIGNIFICANT WILDLIFE HABITAT AND TRAVEL CORRIDORS

-  W-32
-  SAMPLE SPECIMEN TREES

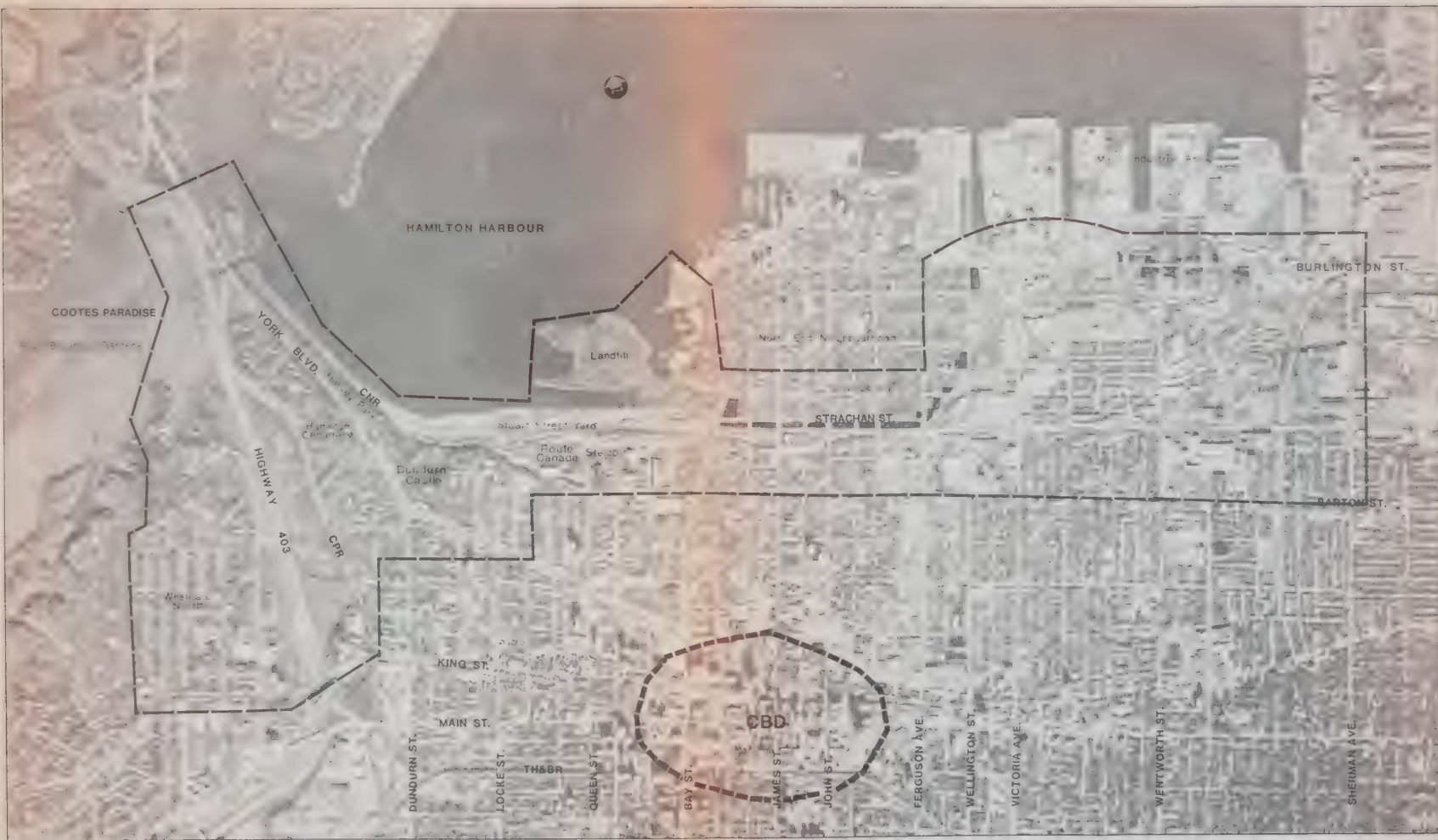
-  STUDY AREA
-  CENTRAL BUSINESS DISTRICT

Scale 1:15 000 (approx.)

NATURAL ENVIRONMENT
FIGURE 4-3

May 1987

HAMILTON PERIMETER ROAD



Legend

- MUNICIPALLY OWNED PROPERTY
- STUDY AREA
- CENTRAL BUSINESS DISTRICT

FIGURE 4.4

Scale 1:15 000 (approx.)

MUNICIPALLY OWNED PROPERTY

NOTE: Purchased for Perimeter Road based on 1978
Council Recommendation (as of May 1987)

HAMILTON PERIMETER ROAD

The area between Wellington and Victoria north of Ferrie Street and south of Burlington has been designated for purchase and 5-10% of this has been acquired for the Perimeter Road.

Approximately 25% of the area east of Victoria to Sherman has been purchased.

No land west of Bay Street to Highway 403 has been purchased. It is estimated that an additional 10 to 12 ha. of property will be required in this area.

5.0 ALTERNATIVES AND EVALUATION

5.1 Alternatives

5.1.1 Highway 403 Interchanges

From a long list of 12 alternatives, four feasible Highway 403 interchange alternatives shown on Figures 5-1 to 5-4 were identified.

Alternatives SK-22 and SK-23 are trumpet interchanges which require tunnelling under Hamilton Cemetery, over the CP line and through Kay Drage Park.

SK-15 is the recommendation of the 1978 Feasibility Study and provides a comparatively high standard interchange with fully directional ramps and avoids fill in both Hamilton Harbour and Cootes Paradise.

Scheme SK-9 is a trumpet interchange in close proximity to the existing York Boulevard ramps north of the Desjardins Canal.

5.1.2 Highway 403 to Bay Street

Between Highway 403 and Bay Street there are two alternatives. The north side alignment is on fill along the Bay side of the CN yards. The south alignment is on an elevated structure along the south side of the CN yards.

5.1.3 Bay Street and the Strachan Street Corridor

Analysis taken during the Scope-of-Work phase confirmed the recommendation from the 1978 study that the Perimeter Road be constructed at track level between Strachan Street and the CN tracks.

However, the following access alternatives were examined:

- ° An interchange providing all movements at Bay Street;
- ° An interchange providing all movements between James/John Streets;
- ° An interchange to provide all movements at Bay Street and ramps to/from the east at James and John Streets.

5.1.4 Wellington to Sherman

Alternatives were developed for the connection between existing Burlington Street and the Perimeter Road. All alternatives provided:

- ° connections between both Victoria and Wellington Streets and the Perimeter Road to service the downtown,
- ° access to the north - west to service both industries and North End residents,
- ° a direct connection between Burlington Street and the Perimeter Road to discourage traffic from infiltrating through the North End Neighbourhood,
- ° a widening of Burlington Street from four to six lanes,
- ° the potential for future road and rail grade separations.

5.2 Evaluation

5.2.1 Highway 403 Interchanges

Table 5-1 summarizes the major factors employed in evaluating the Highway 403 interchange alternatives. Complete factor and criteria evaluation tables are presented in the Appendix.

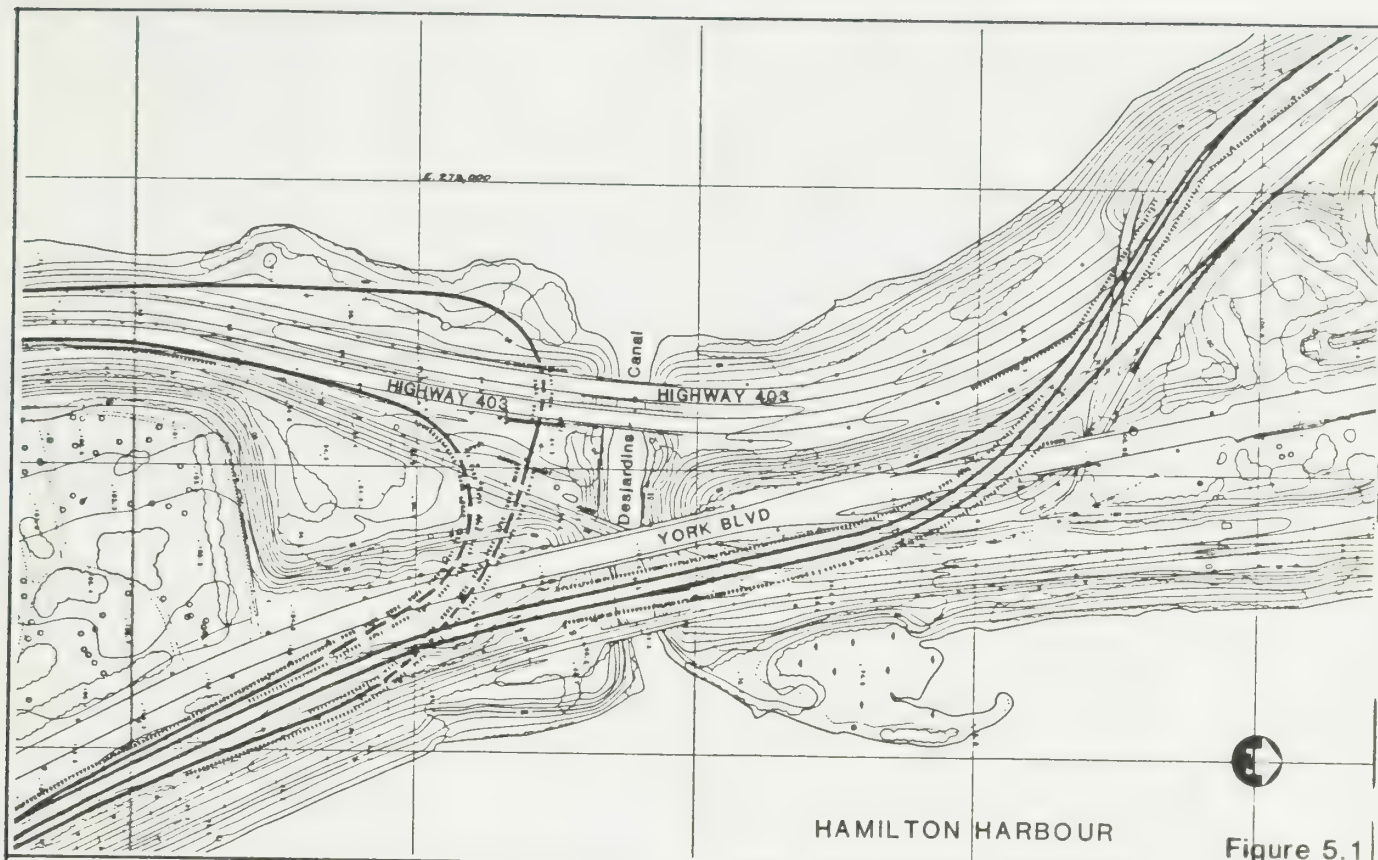


Figure 5.1

SK-15

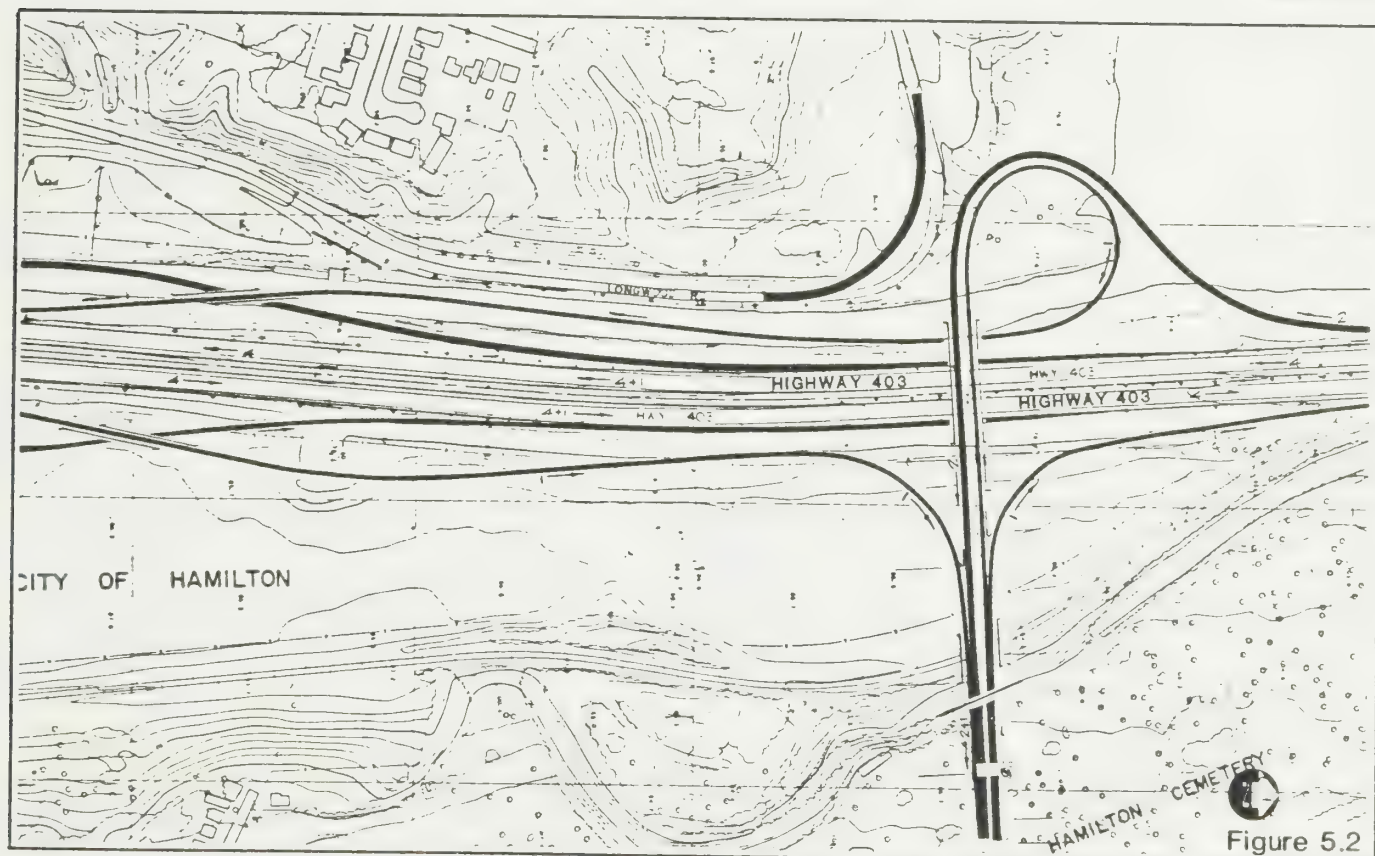


Figure 5.2

SK-22

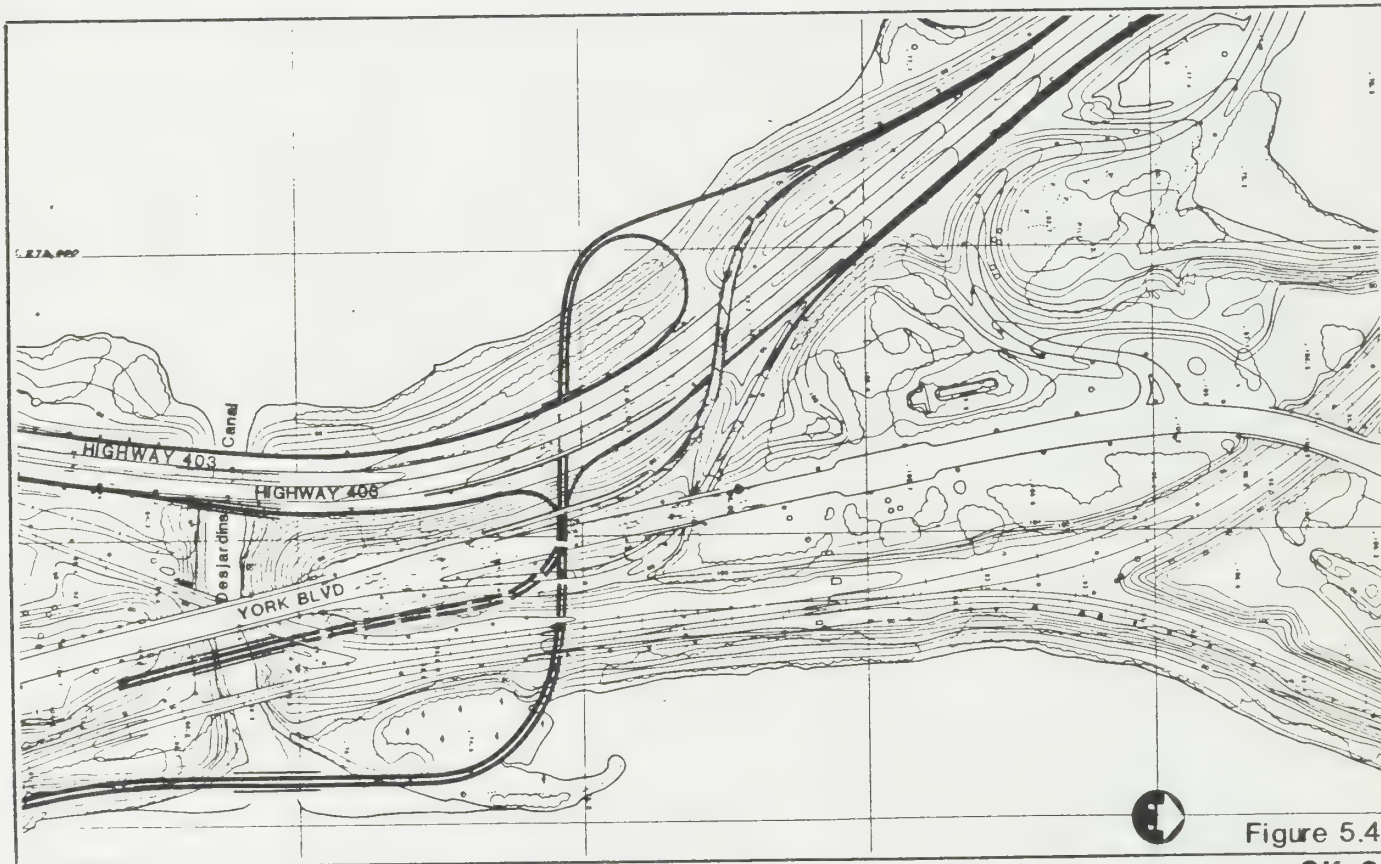
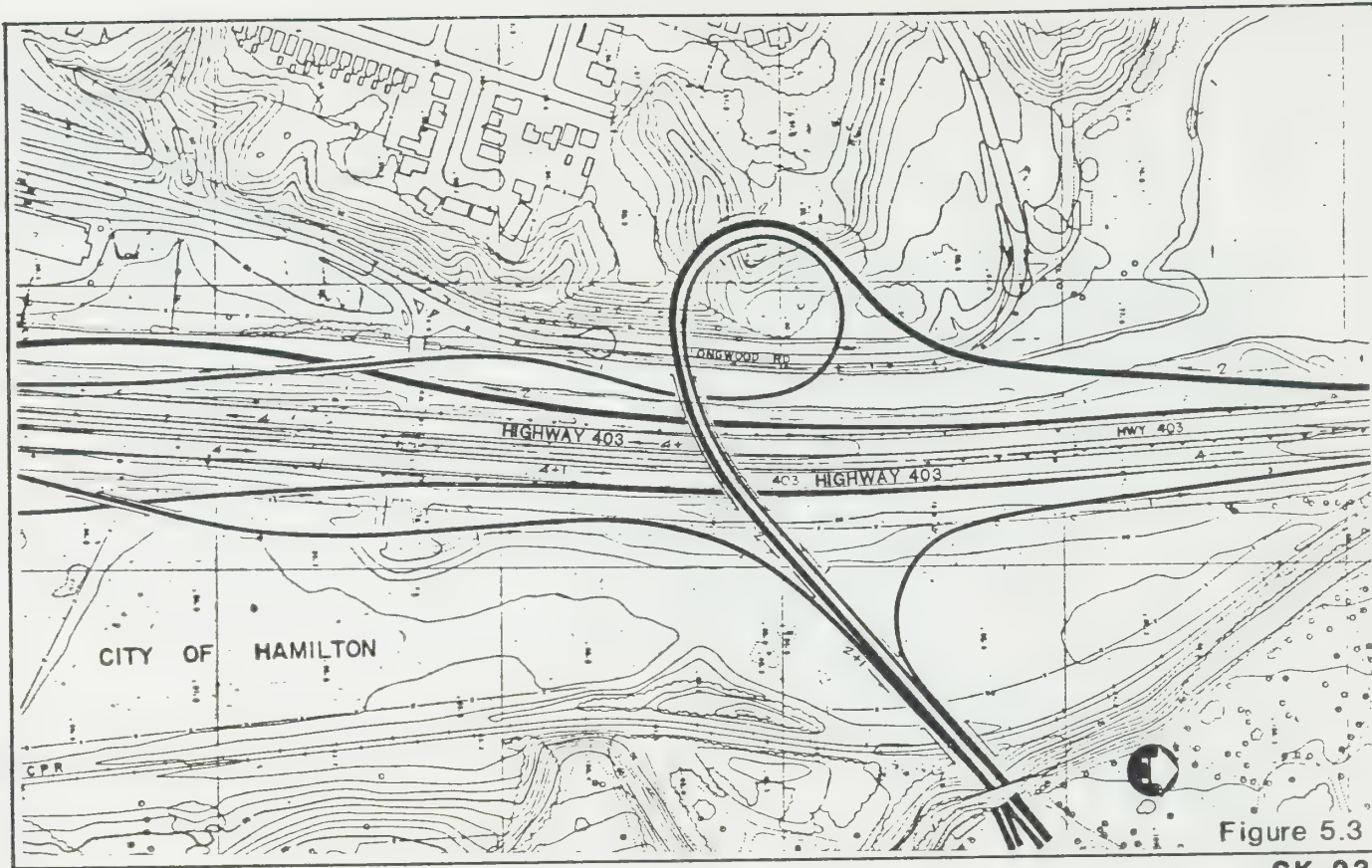


TABLE 5-1

**SUMMARY OF MAJOR EVALUATION FACTORS
HIGHWAY 403 INTERCHANGE ALTERNATIVES**

<u>MAJOR FACTOR</u>	<u>SK-15</u>	<u>SK-22</u>	<u>SK-23</u>	<u>SK-9</u>
Park Impacts:				
	Kay Drage Harvey	Major Minor	Major Minor	None None
Visual Impacts:				
	RBG	Major	Minor	Minor
	Harvey Park	Minor	Minor	None
	Kay Drage Park	Major	Major	None
Proximity Impacts to Westdale North	None	Minor	Major	None
Impacts to ESA's	None	Fill in Princess Point area of RBG	None	Fill in Cootes Paradise and Harbour lands of RBG
Traffic Service	Good, Fully Directional Ramps	Acceptable Trumpet Interchange	Acceptable Trumpet Interchange	Acceptable Trumpet Interchange
COST	\$40M	\$43M	\$45M	\$15M - \$25M

Schemes 22 and 23 were rejected due to the land requirements and high visual impacts to Kay Drage Park, fill in Cootes Paradise (SK-22), proximity impacts to the Westdale North Neighbourhood (SK-23) and high costs.

SK-9 is recommended over SK-15 as it is considerably less expensive while having only slightly greater impacts to Cootes and the Harbour and provides only marginally less traffic service.

During Phase II modification to SK-9 will be explored to reduce impacts associated with fill in Hamilton harbour.

5.2.2 Highway 403 to Bay Street

A south side alignment to interchange SK-9 west of the CN yards is not feasible. Once SK-9 is selected the south side alignment must cross the CN tracks west of the yard to run along the bayshore in fill to the Desjardins Canal. Therefore the comparison of alternatives focuses only on an area through the CN yards. West of the yards the two alternatives are on a common alignment.

Table 5-2 summarizes the major factors used in the evaluation of the two options through the CN yards. Complete factor and criteria evaluation tables are presented in the Appendix.

During Phase II additional investigations will be undertaken to examine the alternatives through the CN yards and their impacts.

TABLE 5-2

**SUMMARY OF MAJOR EVALUATION FACTORS
NORTH SIDE/SOUTH SIDE THROUGH CN YARDS**

	<u>NORTH SIDE</u>	<u>SOUTH SIDE</u>
Visual and Noise Impacts to:		
- Waterfront Park	Significant	Significant
- Dundurn Castle/Park and adjacent residences	Minimal	Significant
Fill in Harbour	Yes	No
Displacement of Bottom Sediments containing high levels of mercury and cadmium	Yes	No
Effect to CN Yards	Minimal	<ul style="list-style-type: none"> - track modifications - relocation of Diesel Shop - modification to inter-modal facility - land for ultimate maintenance facility relocation - relocation of Route Canada trucking operation

COST

\$12M

\$32M

5.2.3 Bay Street and the Strachan Street Corridor

An interchange at Bay Street with all movements will be provided with protection for ramps to and from the east at James/John Streets. This configuration was selected as it:

- ° provides maximum diversion from the North End Neighbourhood
- ° is most compatible with plans for urban design initiatives on James Street
- ° provides good access to proposed Waterfront Park
- ° adequately serves existing and forecasted development in the vicinity of the Perimeter Road
- ° provides sufficient capacity to accommodate the forecasted traffic volumes
- ° provides flexibility should traffic volumes increase beyond those forecasted

With this configuration, significant improvements will be required to Bay Street southerly to Wilson.

5.2.4 Victoria/Wellington Street

An access concept was developed for the connection between existing Burlington Street and the Perimeter Road through a comparison of successive iterations of intersection and interchange configurations. The resulting concept is shown on Figure 1.1 and meets all criteria outlined in Section 5.1.4. This concept can be built initially at-grade without the road and rail grade separations.

6.0 PUBLIC AND AGENCY INVOLVEMENT PROGRAM

6.1 Extent and Timing of Contact

The Public Involvement Program was comprised of two major components, Workshops and Public Information Centres.

The Workshops included elected officials and representatives from government agencies, industries, local interest groups, ratepayers associations, and other interested parties. A list of those contacted is presented in the Appendix.

The Workshops started with a brief presentation by the Region's staff and Consultant, followed by an informal question and answer period. During the discussions the attendees were provided the opportunity to ask questions, clarify issues and comment on the study and its findings. Workshops were held in December 1986 and April 1987.

A Public Information Centre was held to present the alternatives under consideration and receive comments from the public to incorporate in the decision making. All members of the public were welcome and invitation was by advertisement in local papers and brochure distribution. The Information Centre was held on 9 April 1987.

6.2 Summary of Reaction and Comments

Major areas of comment and concerns resulting from Workshop No. 1 were:

- ° Importance of aesthetics in the west end of the Harbour and Cootes Paradise

- Desire to re-examine alternative 403 interchanges in Kay Drage Park area
- Need to maintain present CN yards
- Noise and visual impact concerns for the North End Neighbourhood and the proposed Waterfront Park
- Concern over traffic infiltration through the North End Neighbourhood
- Need to depress the Perimeter Road through the Strachan Street Corridor
- Need for improved access from the west for residents, industries and businesses in the Bay Front and downtown

The second Workshop was held to present the alternatives and the preliminary evaluation of the alternatives. Major areas of comment and concern from Workshop No. 2 were:

- Need for a high standard connection to Highway 403 to encourage truck traffic
- Concern over constructing on an elevated structure
- A recognition that the Perimeter Road will benefit the North End Neighbourhood by eliminating through traffic
- A recognition of the need for a full movements interchange at Bay Street
- Concern over providing ramps at James and John Streets due to perceived conflicts with the James North Heritage District.

The Public Information Centre was well attended by approximately 150 to 200 persons. Attendance was primarily by North End residents and they represented approximately 15% of those in the North End contacted by brochure distribution. Response was quite favourable and there was a general acceptance of the project. Many questioned when construction would begin. Major areas of comment and concern focussed on traffic and safety issues in the North End Neighbourhood. The diversion of traffic from the North End by the Perimeter Road was acknowledged by many residents.

Many detailed questions regarding property requirements, profile and alignment alternatives were raised beyond the scope and level of detail of the Phase I investigations. These people were informed that such questions could be answered after the Phase II Preliminary Design Investigations were completed.



APPENDICES

APPENDIX
HAMILTON PERIMETER ROAD
EVALUATION OF ALTERNATIVES
SUMMARY CHART

FACTORS		HIGHWAY 403 INTERCHANGE			
		ALTERNATIVES			
	CRITERIA	DESCRIPTION			
		SK-15	SK-22	SK-23	SK-9
1. Traffic Operations	a) Geometrics	N-E	40	40	40
	Ramp speed	E-N	55	40	40
	(km/hour)	S-E	55	70	40
	E-S	40	40	40	40
2. Socio-Economic	b) Local traffic patterns	No effects	No effects	Requires closing of Longwood Road	No effects
	c) Traffic Service	Good, fully directional ramps	Acceptable	Acceptable	Acceptable
	a) Visual Impacts	No change in view	Open view across water to elevated ramp	Located inland no impact	Mitigation is possible due to low elevation of ramps
	view from Princess Point	Minimal visibility - mitigation is possible due to low elevation of ramps	Significant visibility - difficult to mitigate	Significant visibility - difficult to mitigate	Minimal visibility - mitigation is possible due to low elevation of ramps
3. Noise Impacts*	view from Westdale North Neighbourhood	No direct visibility	Partially visible from rear yards - mitigation possible	Highly visible due to proximity of residences - mitigation difficult	No direct visibility
	b) Noise Impacts* on Westdale Neighbourhood	No impact	No impact	No impact	No impact
	RBG	No impact	No impact	No impact	No impact

* Dominant source of noise is from Highway 403

APPENDIX
HAMILTON PERIMETER ROAD
EVALUATION OF ALTERNATIVES
SUMMARY CHART
continued

H I G H W A Y 4 0 3 I N T E R C H A N G E		A L T E R N A T I V E S		
FACTORS	CRITERIA	D E S C R I P T I O N		
		SK-15	SK-22	SK-23
c) Impact on Kay Drage Park • visual • operations		Not visible	Significant visibility (goes through park)	Significant visibility (goes through park)
		None	Removes playing field at north end (major disruption)	Removes playing field in centre (major disruption)
d) Impact on Harvey Park • noise • visual • operations		Significant noise increase - difficult to mitigate	Minimal noise increases	Minimal noise increases
		Highly visible - difficult to mitigate	Minimal visibility - can be mitigated	Minimal visibility - can be mitigated
e) Impact on Hamilton Cemetery • operations • visual		Significant disruption	No disruption	No disruption
		None	None directly (tunneling required)	None directly (tunneling required)
f) Effects on Aesthetics of High Level Bridge • view from bridge • view of the bridge from Hwy 403		No direct visibility	Significant impact	Significant impact
		Interchange is significantly below elevation of bridge and will not affect view	No impact	No impact
		View not affected	View not affected	View not affected
		View not affected	View not affected	View not affected
		Interchange is significantly below elevation of bridge and will not affect view	Interchange is significantly below elevation of bridge and will not affect view	Interchange is significantly below elevation of bridge and will not affect view

Not visible

Significant visibility (goes through park)

Significant visibility (goes through park)

Removes playing field at north end (major disruption)

Removes playing field in centre (major disruption)

Minimal noise increases

Minimal noise increases

Minimal visibility - can be mitigated

Minimal visibility - can be mitigated

No disruption

No disruption

None

None directly (tunneling required)

Significant impact

Significant impact

No direct visibility

Interchange is significantly below elevation of bridge and will not affect view

No impact

No impact

View not affected

View not affected

View not affected

View not affected

Interchange is significantly below elevation of bridge and will not affect view

Interchange is significantly below elevation of bridge and will not affect view

Interchange is significantly below elevation of bridge and will not affect view

APPENDIX
HAMILTON PERIMETER ROAD
EVALUATION OF ALTERNATIVES
SUMMARY CHART
continued

HIGHWAY 403 INTERCHANGE					
A L T E R N A T I V E S					
FACTORS	CRITERIA	DESCRIPTION			
		SK-15	SK-22	SK-23	SK-9

g) Property acquisition
houses

type of land use

size

h) Archeological Impacts

i) Regional Economic
Impacts**

None

None

None

None

Probable acquisition of mostly open space and transportation corridor properties from CN, RBG* and Harbour Commission

Probable acquisition of mostly open space and transportation corridor properties from CN, RBG* and Harbour Commission

Probable acquisition of mostly open space and transportation corridor properties from CN, RBG* and Harbour Commission

Probable acquisition of mostly open space and transportation corridor properties from CN, RBG* and Harbour Commission

6 Ha

8.5 Ha

8.0 Ha

2.5 Ha

Area is highly urbanized, thus any prehistoric and historic land uses are likely to have been disturbed.

Archeological and heritage investigations will be undertaken at the time of final design.

All alternatives (and Roadway in general) provide a significant number of economic benefits to the Region including:

- e.g. - another prestige entrance to Hamilton
- improved travel times for industry and commerce and resultant economic benefits
 - redevelopment potential in areas provided with increased accessibility and the resultant increased tax assessment potential
 - improved access to other areas of the Region
 - creation of local construction employment and spin off effects

*Royal Botanical Gardens

**This applies to all sections of this evaluation.

APPENDIX
HAMILTON PERIMETER ROAD
EVALUATION OF ALTERNATIVES
SUMMARY CHART
continued

H I G H W A Y 4 0 3 I N T E R C H A N G E		A L T E R N A T I V E S			
FACTORS	CRITERIA	D E S C R I P T I O N			
		SK-15	SK-22	SK-23	SK-9
3. Natural Environment	a) Impacts on Cootes Paradise ESA west of Highway 403				
	• volume of fill	0	5,500 m ³	0	5,000 m ³
	• surface area reduction	0	5,500 m ²	0	5,000 m ²
	• vegetation disturbance	Affects woodland with black walnut near Highway 403	Affects immature vegetation only	Affects slope vegetation with black walnut near Longwood Road	Affects woodland with black walnut near Highway 403
b) Impacts on Hamilton Harbour	• vegetation disturbance	Not affected	Not affected	Not affected	Affects spit/marsh of RBG used by shorebirds, frogs and turtles
	• fish habitat impacts	Affects good fish habitat near Desjardins Canal	Affects good fish habitat near Princess Point	Not affected	Affects good fish habitat near Desjardins Canal
	c) Impacts on Central Ridge	Affects immature vegetation on west slope, some mature vegetation on east slope	Affects primarily immature vegetation on west slope	Affects mature oak woodland on west slope	Affects immature slope vegetation only
4. Costs	a) Construction Costs in millions \$'s	\$40 M	\$ 43 M	\$ 45 M	\$ 15 M to \$ 25 M

APPENDIX
HAMILTON PERIMETER ROAD
EVALUATION OF ALTERNATIVES
SUMMARY CHART

HIGHWAY 403 TO BAY STREET (EXCLUDING INTERCHANGE AT BAY STREET)		A L T E R N A T I V E S	
FACTORS	CRITERIA	BAY SIDE OPTION (NORTH)	TRACK SIDE OPTION (SOUTH)
		D E S C R I P T I O N	
1. Traffic Operations	a) Geometrics/Capacity	Capacity of 3,600 vehicles per hour per direction (both alternatives)	
	b) Flexibility for service to possible future harbour developments	Flexibility exists to provide access to possible future harbour developments.	
2. Socio-Economic	a) Visual impacts	Minimal visibility through wooded slope - mitigative measures possible	Visibility through wooded slope - mitigative measures possible
	• from Dundurn Castle and Park	Visible from proposed park - mitigative measures are possible	Visible from proposed park - mitigative measures possible
	• from Hamilton Harbour recreational waterfront development		
	b) Noise impacts	Impacts, mitigation will be examined - significant noise generators already exist - CN, industry	Impacts, mitigation will be examined - significant noise generators already exist - CN, industry
	• Hamilton Harbour activities		
	• Dundurn Castle/ Park	Impacts, mitigation will be examined - significant noise generators already exist - CN, industry, York Boulevard	Impacts, mitigation will be examined - significant noise generators already exist - CN, industry, York Boulevard
	c) Compatibility with bicycle paths and boardwalks proposed as part of Waterfront park plan	Pedestrian connections will have to be modified - highly feasible	No conflict
	d) Pedestrian access across CN lands	Significant opportunities exist for pedestrian access	No conflict
		No conflict	No conflict

APPENDIX
HAMILTON PERIMETER ROAD
EVALUATION OF ALTERNATIVES
SUMMARY CHART
continued

HIGHWAY 403 TO BAY STREET (EXCLUDING INTERCHANGE AT BAY STREET)		A L T E R N A T I V E S	
FACTORS	CRITERIA	DESCRIPTION	TRACK SIDE OPTION (SOUTH)
		BAY SIDE OPTION (NORTH)	
3. Natural Environment	a) Impacts on Hamilton Harbour <ul style="list-style-type: none"> • volume of fill required • reduction in surface area • volume of existing bottom sediments displaced • fish habitat impacts 	<ul style="list-style-type: none"> - SK 9 at Hwy 403 260,000 m³ - SK 15, 22 & 23 at Hwy 403 175,000 m³ - SK 9 at Hwy 403 65,000 m² - SK 15, 22 & 23 at Hwy 403 45,000 m² - SK 9 at Hwy 403 220,000 m³ - SK 15, 22 & 23 at Hwy 403 220,000 m³ 	0 0 0
	b) Impacts on Upland Slope <ul style="list-style-type: none"> • vegetation disturbance 	Affects fish habitat along shore Does not affect slope vegetation but primarily young regeneration on fill	No effects Affects immature and mature woodland slope vegetation.
4. Impacts on Industry	a) Redevelopment potential in industrial area	Will increase industrial redevelopment potential (based on discussion with area industries and municipality)	Will increase industrial redevelopment potential (based on discussions with area industries and municipality)
	b) Property acquisition <ul style="list-style-type: none"> • size 	Probable acquisition from: CN, Harbour Commission (water lots) 9 ha (23 Ac) - majority from Harbour Comm.	Probable acquisition from: CN, Harbour Commission, and Route Canada 5 ha (13 Ac) - majority from CN and Route Canada
5. CN Rail Operations	a) Track removal	None	Minimal
	b) Track displacement	None	Minimal
	c) Effects on buildings (operations)	None	Would require removal of diesel shop
	d) Property acquisition	Minimal (mostly on fill)	Substantial (+ 10 Ac) - some on structure most of the property can be redeveloped

APPENDIX
HAMILTON PERIMETER ROAD
EVALUATION OF ALTERNATIVES
SUMMARY CHART
continued

FACTORS		CRITERIA		HIGHWAY 403 TO BAY STREET (EXCLUDING INTERCHANGE AT BAY STREET)	
				A L T E R N A T I V E S	
		D E S C R I P T I O N		BAY SIDE OPTION (NORTH)	TRACK SIDE OPTION (SOUTH)
6. Costs	e) Service disruption	Possibly during construction		During construction	
	f) Redevelopment potential	Increased redevelopment potential		Increased redevelopment potential	
	g) Effects on GO-Transit plans	No impacts		No impacts	
	a) Construction costs in millions \$'s - SK 9 at Hwy 403 - SK 15, 22 & 23 @ Hwy 403	No impacts		N/A \$30 M	

HAMILTON PERIMETER ROAD PROJECT

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Attention: Marvin Wasserman

Hamilton Historical Board
c/o Michael Archaeological
Services
907-981 Main Street West
Hamilton, Ontario
L8S 1A8

Attention: Ms. Rita Michael

Head of the Lake Historical
Society
28 Ferrie Street West
Hamilton, Ontario
L8L 1C5

Attention: Mrs. Jim Norris

Hamilton and District
Chamber of Commerce
100 King St. W.
Suite 830
Hamilton, Ontario
L8P 1A2

Attention: Kathy Drewitt
Director of Policy

Business Land Use Advisory
Committee
c/o McCaw & Hall Inc.
135 James St. S.
Suite 101
Hamilton, Ontario
L8P 2Z6

Attention: Doug McCaw
Chairman

Hamilton Harbour Commission
605 James St. N.
Hamilton, Ontario
L8L 1J9

Attention: Bob Edwards

Hamilton Waterfront Park
Committee
Hamilton City Hall
71 Main Street West
Hamilton, Ontario
L8N 3T4

Attention: Alderman Geraldine Copps

Hamilton Waterfront Park
Committee
Community Development Department
Hamilton City Hall
71 Main Street West
Hamilton, Ontario
L8N 3T4

Attention: Jayne Tollefson, Coordinator

Crystal Palace Committee
Public Works Department
Hamilton City Hall
71 Main Street West
Hamilton, Ontario
L8N 3T4

Attention: Kevin Christenson, Coordinator

Hamilton Board of
Education
100 Main St. W.
Hamilton, Ontario
L8P 1H6

Attention: John Penner

Hamilton Separate
School Board
90 Mulberry St.
Hamilton, Ontario
L8R 2C8

Attention: Ed Gera

Hamilton Region
Conservation Authority
838 Mineral Springs Rd.
Ancaster, Ontario
L9H 5E3

Attention: Mr. Ken Dakin

Hamilton Auto Club
393 Main St. E.
Hamilton, Ontario
L8N 1J7

Attention: Mr. L. Laviolette

North Central Community School
Association
Robert Land School
460 Wentworth Street North
Hamilton, Ontario
L8L 5W8

Attention: Mr. Jeff Hales

Stelco Inc. - Hilton Works
Works Manager Office
Wilcox Street
Hamilton, Ontario
L8N 3T1

Attention: Mr. Ron Price

CN Rail
277 Front St. W.
Floor 4
Toronto, Ontario
M5V 1X7

Attention: Mr. George Mann

Ministry of Environment
Environmental Assessment
Branch
7th Floor
135 St. Clair Ave. W.
Toronto, Ontario
M4V 1P5

Attention: Mr. David Smith

Ministry of Natural Resources
Box 2186
Beaverdale Road
Cambridge, Ontario
N3C 2W1

Attention: Mr. Ted Harvey

Dr. Peter F. Rice
Assistant Director
Royal Botanical Gardens
Box 399
Hamilton, Ontario
L8N 3H8

Hamilton Harbour Stakeholders
c/o Land Use Research Associates
208 Bloor St. W.
Suite 603
Toronto, Ontario
M5S 1T8

Attention: Ms. Sally Leppard

Ms. Dion
72 Picton St. W.
Hamilton, Ontario
L8L 1E3

Ms. Kathy Renwald
433 Bay Street North
Hamilton, Ontario
L8L 1N2

Mr. Don Ross
Hamilton City Hall
71 Main Street West
Hamilton, Ontario
L8N 3T4

Metropolitan Hamilton Real
Estate Board
194 James Street South
Hamilton, Ontario
L8P 3A7

Attention: Mr. Ernie Geisel, Chairman
Legislation Committee

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